# Need For Bridging The Industry-Academia Gap

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**Abstract - Youth of nation is considered as the wealth of nations and hence the future of nation depends widely on the appropriate employability of the youth. The large availability of youth potential is not alone sufficient for the growth of the nation and creating more employment opportunities alone cannot help if the youth is incapable of extracting the opportunities available to them. There is always a need for collaboration of non-formal education in the formal education structure to increase the youth potential in getting the jobs. The required skills and capabilities are found to be inappropriate when seekers go for the job opportunities. This paper is an attempt to understand the need for the academia industry partnership in order to enable youth to develop their skills and abilities which are necessary for getting and performing a desired job. Paper consider the three tier perspective of industry, academia and stakeholders like teachers and students in understanding the challenges and need of bridging the industry academia gap.**

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## INTRODUCTION

Academic institutions and Industry have been operating in separate domains for a very long time. But due to rapid globalisation and complex business structures, India has realized that a major hindrance to cope up with these changes is the lack of skilled labour across many industries and sectors.

According to NASSCOM, 3 million graduates and post graduates are added to the Indian workforce every year. However only 25.4% of technical graduates and 10.2-15.6 % of other graduates are work ready/employable.

Hence, our present scenario is very dangerous as what we have is a growing skill gap highlighting the lack of high-quality college education in India and the galloping pace of the country's service driven economy. Over the next few years, the businesses aim to double, treble their workforce in India. For India to retain and improve its global marketplace position, it must prepare and plan to build a world-class, competent, talented and an innovative workforce.

### Need to bridge the gap

Academia-Industry collaboration can be defined as an interactive and collaborative arrangement or setup between academic institutions (schools, colleges etc.) and business entities to achieve certain mutually inclusive goals and objectives. When both these entities work in isolation then it reflects a gap.

Researchers have explored the relationship between academics and industry. According to them corporations are placing **growing emphasis on finding the "right person"**. It forces the academic institutions to think more carefully on whom they hire, and therefore the role of industry in the entire academia model becomes important.

Today, the academic institutions have realized the importance of '*working closely with employers'* for the following reasons:-

- Increasing Complexity:The rapid changes in the business environment has made the business world very complex and has necessitated the academic institutions to deal with the changes.
- Growing skill gap: The statistics given by NASSCOM (mentioned earlier) highlight that majority of the graduates and post graduates are not work-ready. Our country's age demographic highlight that we are youth-driven country (as 65% of the population is below 35 years) and therefore it becomes imperative to provide them with high-quality education in order to make them employable.
- Stiff competition: The youth of our country has to compete with graduates/post graduates of other countries to get better jobs. Lack of skills in the students of our country will make them fall behind
- Expectations of the industry: The industry expects some kind of skills and professionalism from graduates but these expectations are not met with most of the times. The organisations have to start from scratch to train fresh recruits which leads to a lot of wastage of time and resources.
- Outdated Syllabus: The syllabus followed by most of the colleges is outdated. The research revealed that most institutes revise their syllabus every 5 years.
- Migration of students: Most of the students do not have faith in the Indian education system. They feel that there is no emphasis on practical knowledge and research oriented work. Therefore they prefer to study in foreign universities and also end up working there. By improving the quality of education in India we will be able to avoid the brain drain.

### Challenges to such a collaboration:

Even though academic institutions have started taking initiatives to bridge the gap, there still exist major obstacles to achieve such a collaboration. Its full potential is far from being utilised due to the basic 'attitudinal differences' and perception of technology development among the stakeholders.

- Government

The government is often not very flexible and entrepreneurial in nature when it comes to industry-academic partnership. The major problem also lies with the attitude of personnel working in the education ministry of the government.

❖ Problems with the personnel
- Lack of motivation, qualifications, desired qualities and compassion to deal with the problem
- Lack the insight to understand the benefits of such a collaboration

❖ Problems with the system
- Red-tapism and bureaucracy
- Delay in funding
- Undue control and external influence

➢ Academia

Changing the traditional methods of learning and teaching is a big challenge in India. It requires the academic institutions to alter their system in order to develop an efficient industry-academic interface. The problems are as follows:
- The restrictive internal policies and procedures of an institution hinder innovation and collaboration.
- Lack of infrastructural support, proper laboratories, R&D facilities to support such a collaboration.
- The faculty is reluctant to leave their comfort zone of pure teaching and practice research-oriented teaching
- The faculty is unaware of the reality of the business world and therefore cannot provide adequate skills.
- Lack of incentive to the faculty and no proper recognition is given for practicing faculty as compared with pure academics worshipper
- Rampant corruption in utilization of funds for various infrastructural and consultancy funds.
- Absence of exclusive university-industry interaction cell in the college campus.

➢ Industry

The industry also does not take much initiatives because of the reasons mentioned below:-
- The industry believes in targeted development. There is always a time-constraint. If the industry feels that the output of such an interaction will not be in direct proportion to the time invested, it would not take such an initiative, instead it will invest time on other things.
- They don't want to invest in the internal R&D of academic institutions as they feel that academicians lack skills to reap full benefits of such an investment. They feel that it's more lucrative to invest in other avenues. Also, investing in internal R&D has a long term and an unclear output.
- The academia may also want to just depend on foreign know-how, expensive laboratory facilities to carry out research activities.
- At times due to earlier bitter experiences, an organization may try to avoid any such collaboration.
- The secretive nature of the industry regarding success, failure and the fear of losing the competitive edge may also hinder such interactions.

## RESEARCH METHODOLOGY

Research considered three categories of respondents and prepared **3 Questionnaires** in order to address the industry-academic gap. The questionnaire mainly included objective questions but some subjective questions were also asked.

| Questionnaire Number | Target Group |
|---|---|
| 1 | Students |
| 2 | Teachers/Professors/Academicians |
| 3 | Corporates |

Questionnaire 1:

The target group for this questionnaire were students (18-20 years) from various colleges across India (Delhi, Mumbai). The objectives of this questionnaire are stated below:

To understand
- The kind of initiatives taken by the college
- The nature of partnership between the academic institution and the industry
- The structure of internship
- The expectation in returns from the academic institution.

***The analysis of this questionnaire has been done in two parts. The first part deals with what colleges are doing and the second part has questions related to internships.***

Questionnaire 2:

The target group for this questionnaire were Teachers/Professors/Academicians. The objectives of this questionnaire are stated below:
- To understand the fact that as academicians, are they willing to collaborate with industry/ willing to update and teach, take up industrial projects
- The factors that are important to achieve this collaboration

- Obstacles for such a collaboration
- To understand the changes they want to see in the functioning of academic institutions

Questionnaire 3:

The target group for this questionnaire were corporates. The questions asked to them were more subjective as compared to the other two. The objectives of this questionnaire are stated below:

- To understand the employability level of graduates in India
- To understand the criteria of suitability of the candidates including skills and expertise required
- The factors that are important to achieve this collaboration
- Obstacles for such a collaboration
- To understand how would they want academic institutions to train students

**SECONDARY DATA**

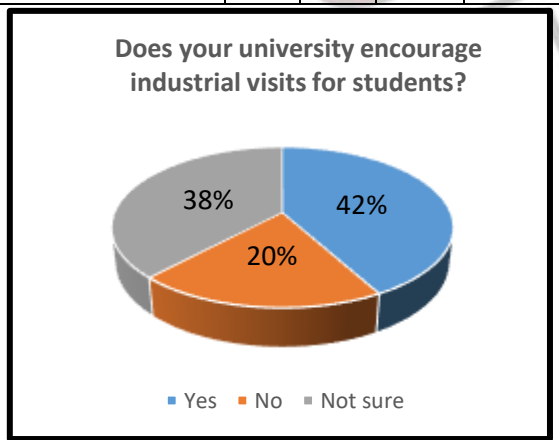
Certain websites were referred to in order to see previous studies related to this topic and to analyse whether things have changed. The data is presented in the form of tables, pie-charts and bar graphs in order to make analysis of data easier. The data was analysed using simple statistical tools. The data was converted into percentages to make the analysis easier.

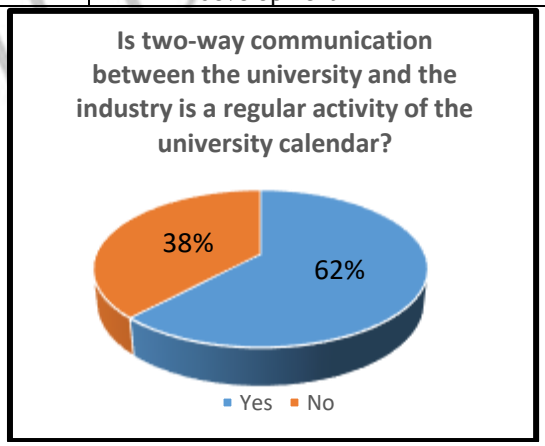
RESEARCH FINDINGS

Questionnaire 1

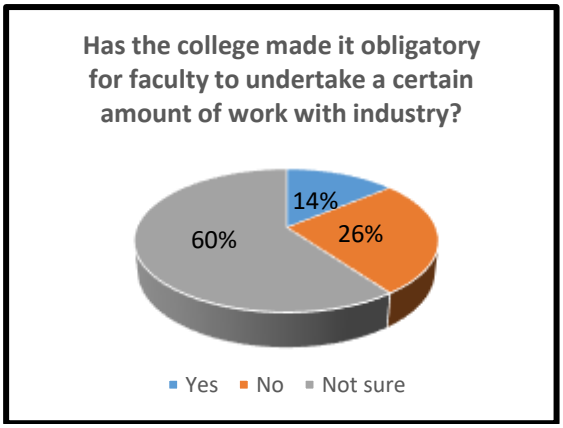
| S.No | Questions | Yes | No | Not Sure | Miscellaneous | Analysis (All figures are in %) |
|---|---|---|---|---|---|---|
| 1 | Is two-way communication between the university and the industry is a regular activity of the university calendar? | 62 | 38 | NA | NA | These days' colleges organise a lot of seminars & guest lectures which highlights a two way communication exists. However, 38% (which is a huge percentage feels otherwise. The probable reasons could be geographic constraints, college brand may not be that good and the college may be stuck to the age-old teaching methods. |
| 2 | Does your university encourage industrial visits for students? | 42 | 20 | 38 | NA | A lot of colleges have started encouraging the need for internships but 38% (which is not sure) highlights either ignorance on the part of students or the lack of initiatives the colleges take to create awareness about the benefits of internship. |
| 3 | Does the college curriculum include a mandatory industrial internship? | 40 | 34 | 26 | NA | The figures highlight that the curriculum is changing but there is a need to change it at a faster pace so that maximum students can benefit and develop the required skills. |
| 4 | Does the faculty involve staff from the industry in the teaching programs? | 54 | 14 | NA | 32 (only for guest lectures) | More than 50% of the colleges involve visiting faculty which is a very good thing. Such a trend should continue as the visiting faculty can give us an insight about the reality of the business world. |
| 5 | Are seminars, workshops a regular feature of the university calendar? | 86 | 14 | NA | NA | Various colleges across India conduct seminars and workshops on a regular basis. |
| 6 | Has the college made it obligatory for faculty to undertake a certain amount of work with industry? | 14 | 26 | 60 | NA | A lot of students aren't aware about this as probably the faculty does not share much about their experience and colleges do not provide much information regarding this. |

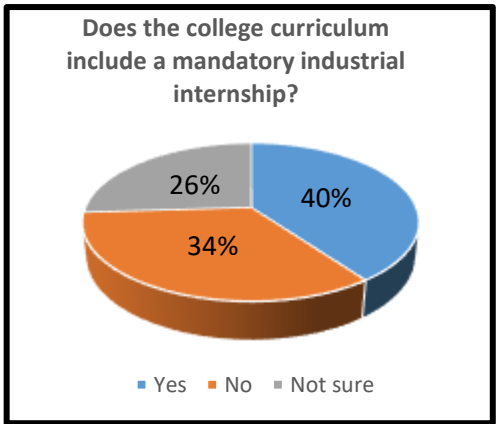
| S.No | Questions | Yes | No | Not Sure | Miscellaneous | Analysis (All figures are in %) |
|---|---|---|---|---|---|---|
| 7 | Have you done an internship? | 14 | 86 | NA | NA | Most of the students have not done internships. The probable reason could be that most of the responses were obtained from first year students and most of the colleges do not offer internships for first year students. Students themselves also don't take initiatives to find internships. |
| 8 | If yes, what according to you is the most important skill required to excel in a job? | NA | NA | NA | NA | Common skills mentioned were: confidence, dedication, hard work and good communication skills, willingness to learn and unlearn. |
| 9 | Did the college help you develop the above mentioned skill(s)? | 34.4 | 21.9 | NA | 43.7 (Maybe) | Majority were not sure whether the college curriculum helped them develop those skills. This is probably because professors just follow the syllabus to the tee and do not put emphasis on developing skills. |
| 10 | Do you think the college had trained you well to tackle the questions in the interview for internship/job? | 33.3 | 38.5 | 28.2 | NA | Majority were either not sure or disagreed that the college curriculum helped them tackle interview questions. This is probably because professors just follow the syllabus to the tee and do not put emphasis on developing soft skills. |
| 11 | What skills have you developed due to the present academic curriculum? | NA | NA | NA | NA | The bar graph shown below depicts the results. |
| 12 | What changes would you like to see in our education system? | NA | NA | NA | NA | The most popular answers were<br>▪ More emphasis on practical knowledge<br>▪ Importance should be given to skill development |

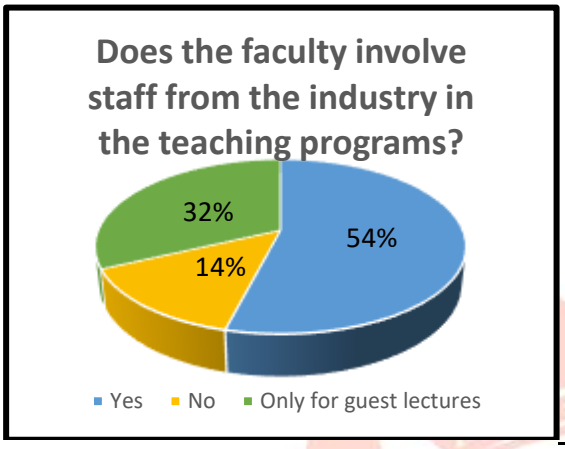


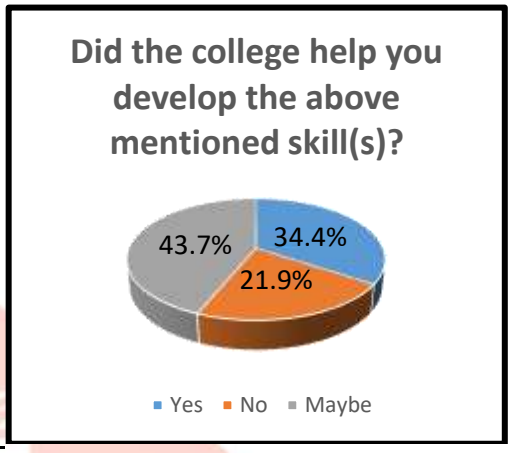



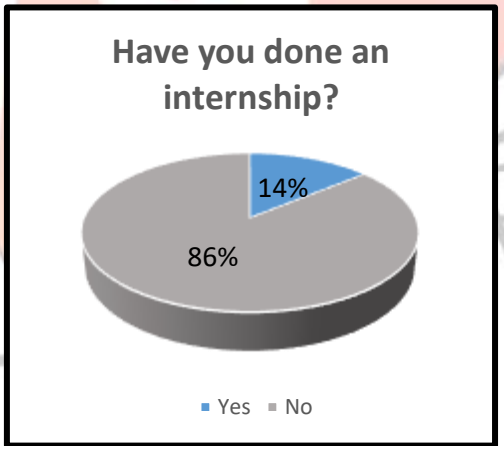

**Graphical representation of the findings**



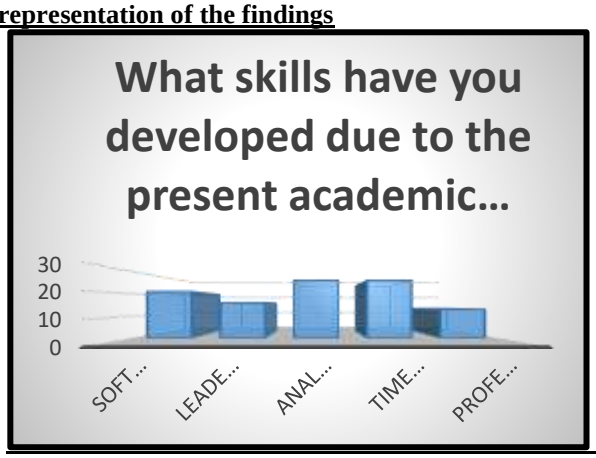



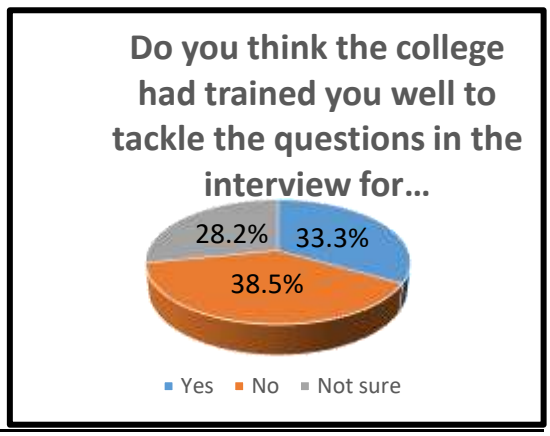



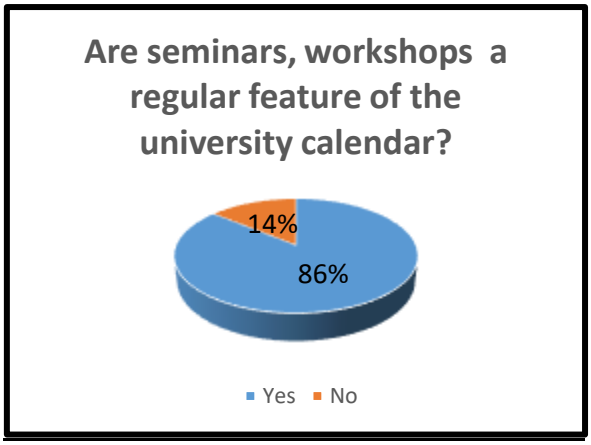




**Graphical representation of the findings**



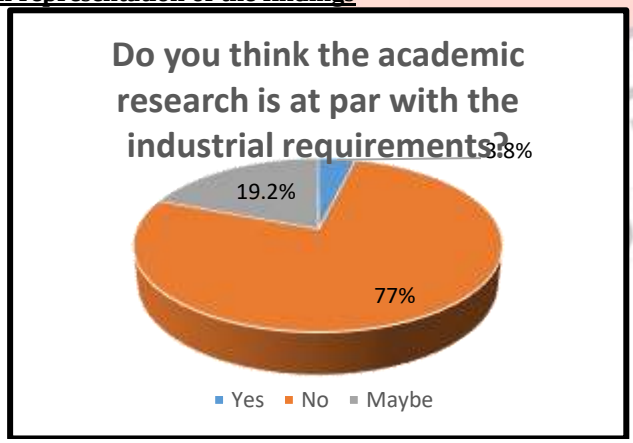


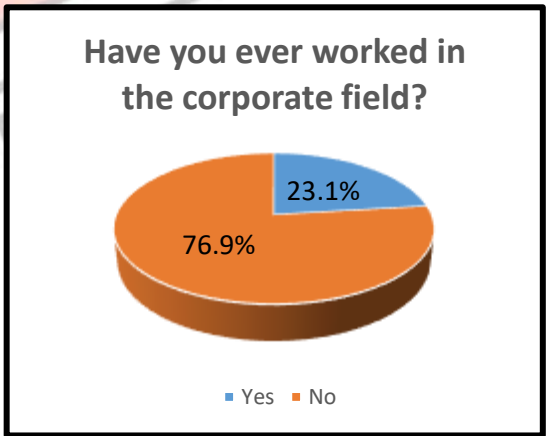

QUESTIONNAIRE 2

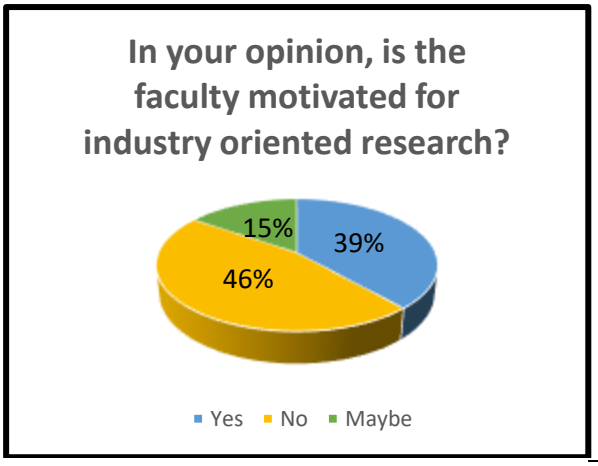
| S.No | Questions | Yes | No | Maybe | Miscellaneous | Analysis (All figures are in %) |
|---|---|---|---|---|---|---|
| 1 | Have you ever worked in the corporate field? | 23.1 | 76.9 | NA | NA | Most of the professors have not worked in the corporate which highlights that they have very limited knowledge of the industry. |
| 2 | Do you think the academic research is at par with the industrial requirements? | 3.8 | 77 | 19.2 | NA | Most academicians believe that their research is not at par with the industrial requirements probably because of the limited exposure they have had with the industry. |
| 3 | Do academicians feel confident to undertake industrial projects? | 46.2 | 50 | 3.8 | NA | There is a mixed view on this opinion. Probably academicians who have interacted with the industry to some extent are confident and others who have had no exposure are not that confident. |
| 4 | In your opinion, is the faculty motivated for industry oriented research? | 39 | 46 | 15 | NA | There is lack of motivation due to<br>▪ No proper incentive (monetary and non-monetary)<br>▪ No proper recognition is given for practicing faculty as compared with pure academics worshipper |
| 5 | Teaching and other administrative load prevents faculty from undertaking industrial projects? | 88.5 | 3.8 | 7.7 | NA | The administrative load prevents professors to devote time to industrial research and to interact with the industry. |
| 6 | Academicians do not consider industrial collaboration as part of their job | 65.4 | 34.6 | NA | NA | Academicians feel that their role is limited to pure teaching. They are also reluctant to step out of their comfort zone. |
| 7 | Do you think academic-industry collaboration has a negative influence on the pedagogic mission? | 0 | 80.8 | 19.2 | NA | Majority disagree as such a collaboration will only make the teaching system better. There are absolutely no ill-effects of the collaboration. |
| 8 | Does your university have enough laboratory facilities to support academic-industry partnerships? | 30.8 | 69.2 | NA | NA | Most of the colleges lack infrastructural facilities to support such a collaboration. |
| 9 | Is the geographic location of your university a barrier to support the industry academic partnership? | 0 | 88.5 | NA | 11.5 (Somewhat) | Majority felt that geographic location is not a constraint rather the age old teaching mechanism hinders the collaboration |
| 10 | Does the university have clear procedures and processes in place to support academia-industry collaboration? | 38.5 | 61.5 | NA | NA | Most of the universities do not have clear procedures as our traditional teaching mechanism did not incorporate this aspect. The system however is changing now. |

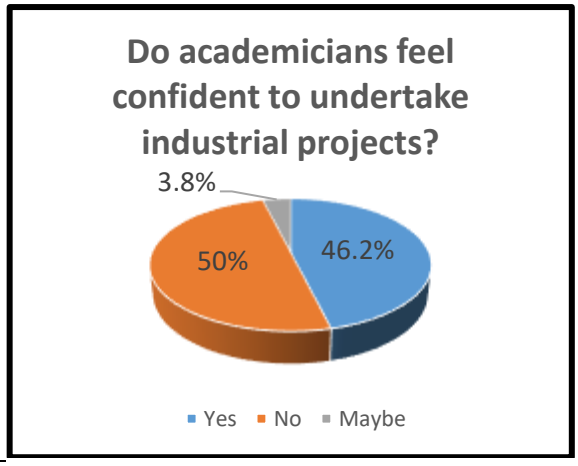
| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | Does the course structure take into account the latest industrial trends? | 8 | 58 | 34 | NA | The latest industrial trends are ignored and outdated syllabus is taught to the students. |
| 12 | How often is the course structure revised? | 37.5 (every Year) | 58.3 (every 5 yrs) | 4.2 (other) | NA | The syllabus is revised every 5 years and therefore a lot of students learn outdated methods and techniques. |
| 13 | Do you think the students are motivated to take up industrial projects? | 73.1 | 7.7 | 19.2 | NA | The faculty feels that students are motivated as they have understood the benefits of the collaboration. |
| 14 | What changes would you suggest that will further facilitate/improve Academia-Industry collaboration? | NA | NA | NA | NA | The most popular suggestions:<br>▪ Focus on research and practical application<br>▪ Internships should be made mandatory<br>▪ Syllabus should be revised every year and industry experts must be included in deciding the syllabus<br>▪ Guest lectures, seminars and workshops for both teachers and students should be encouraged. |
| 15 | List any one obstacle in the academia industry collaboration | NA | NA | NA | NA | Obstacles include<br>• Outdated syllabus<br>• Administrative load<br>• Lack of proper infrastructure<br>• More importance given to marks<br>• No direct interaction between industry experts and academicians. |
| 16 | What do you think is the most important factor to support such a collaboration? | NA | NA | NA | NA | Most important factors are:<br>• institutional support<br>• Adequate funding<br>• Regular revision of syllabus<br>• Increase in interaction between the two entities. |

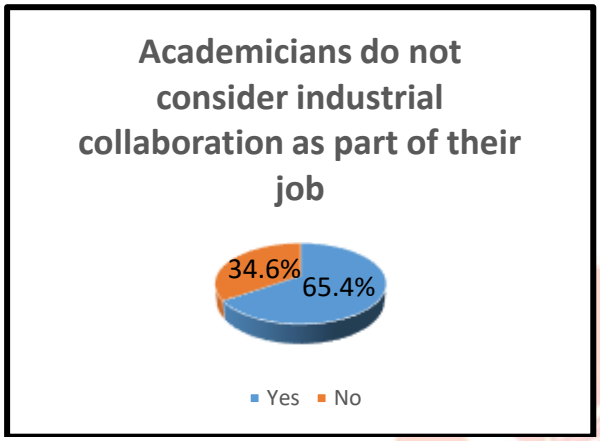
**Graphical representation of the findings**

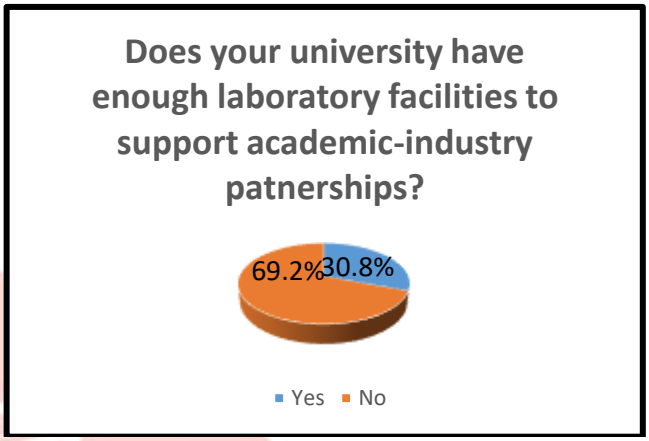


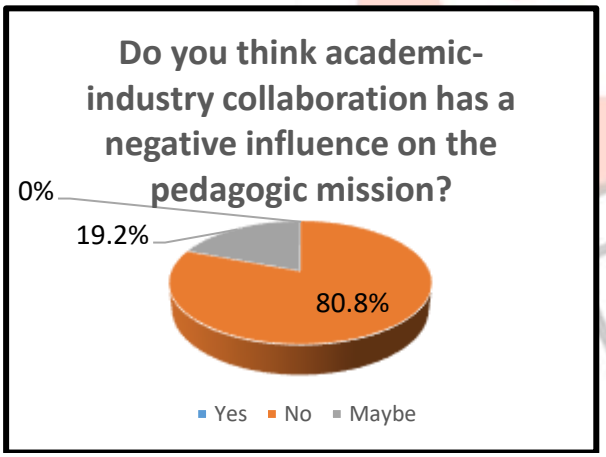



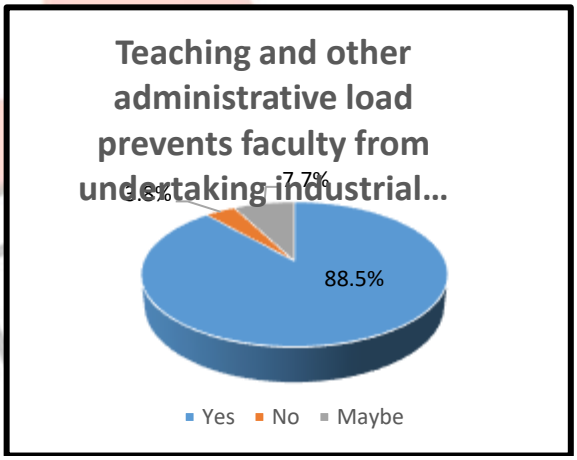

In your opinion, is the faculty motivated for industry oriented research?
15%
39%
46%
Yes
No
Maybe

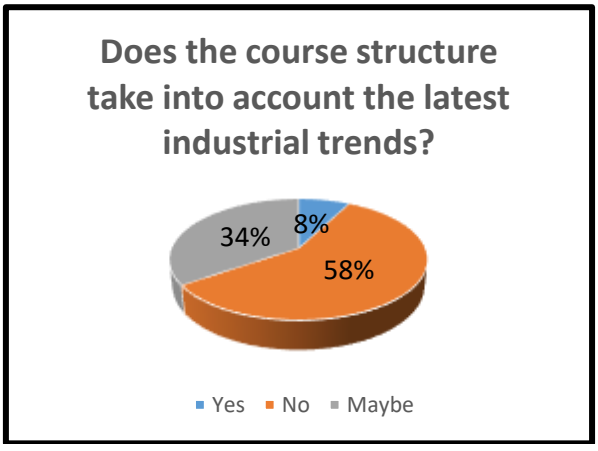

Do academicians feel confident to undertake industrial projects?
3.8%
50%
46.2%
Yes
No
Maybe

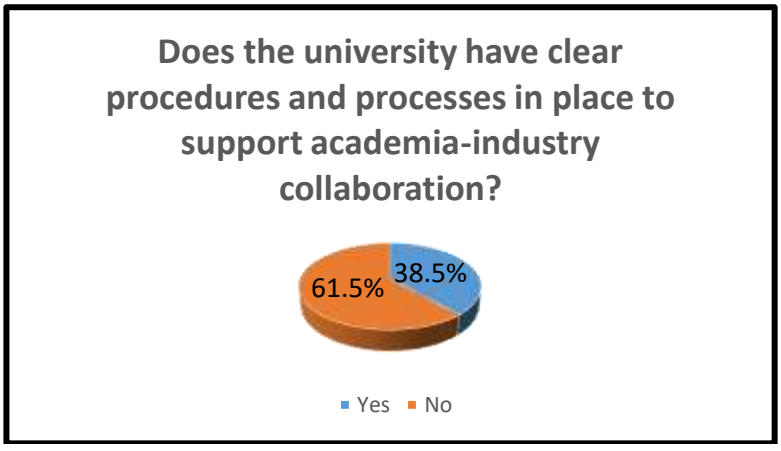

Academicians do not consider industrial collaboration as part of their job
34.6%
65.4%
Yes
No

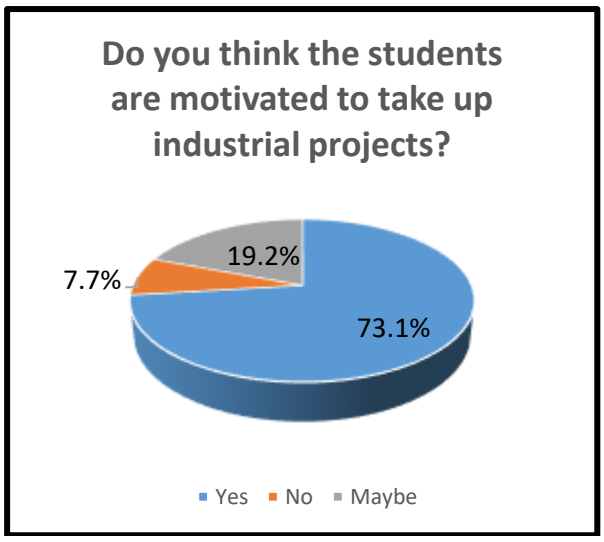

Does your university have enough laboratory facilities to support academic-industry patnerships?
69.2%
30.8%
Yes
No

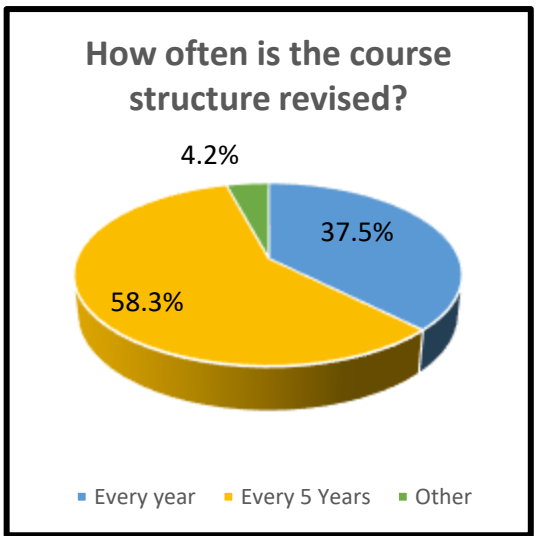

Do you think academic-industry collaboration has a negative influence on the pedagogic mission?
0%
19.2%
80.8%
Yes
No
Maybe

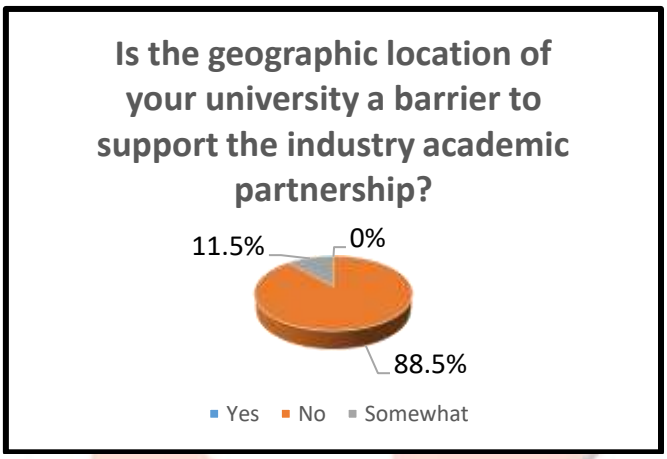

Teaching and other administrative load prevents faculty from undertaking industrial...
7.7%
88.5%
Yes
No
Maybe


Does the course structure take into account the latest industrial trends?
34%
8%
58%
Yes
No
Maybe


Does the university have clear procedures and processes in place to support academia-industry collaboration?
61.5%
38.5%
Yes
No



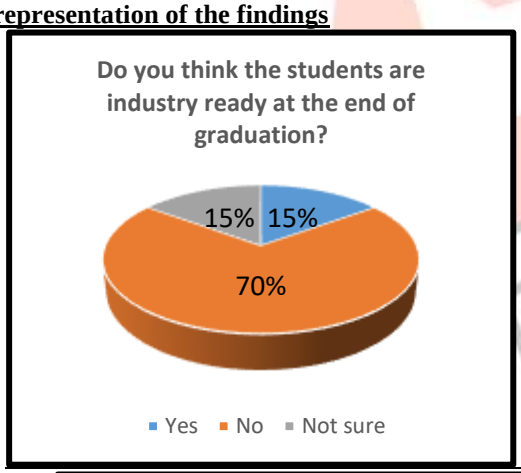

QUESTIONNAIRE 3

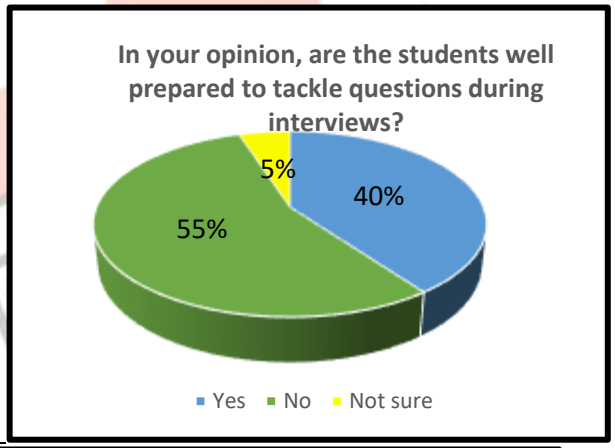
| S.No | Questions | Yes | No | Not Sure | Analysis (All figures are in %) |
|---|---|---|---|---|---|
| 1 | Do you think the students are industry ready at the end of graduation? | 15 | 70 | 15 | Majority of the corporates feel that graduates are not work ready as the college curriculum does not help them develop skills. The 15% you think they are work ready probably are talking in context of engineers. The engineering graduates have a four year programme coupled with internships and industrial visits. Therefore they are still employable to some extent. |
| 2 | If no, what changes should the college curriculum undergo in order to make the transition smoother? | NA | NA | NA | • Course should include industry requirements and latest research trends<br>• Communication skills should be given developed. A lot of engineers lack soft skills, people skills.<br>• Mandatory internships<br>• Values of commitment and willingness to learn must be instilled in them |
| 3 | In your opinion, are the students well prepared to tackle questions during interviews? | 40 | 55 | 5 | Majority say no as the colleges do not conduct mock interviews, workshops on how to face an interview etc. Along with CV writing workshops, mock interviews must also be conducted. |

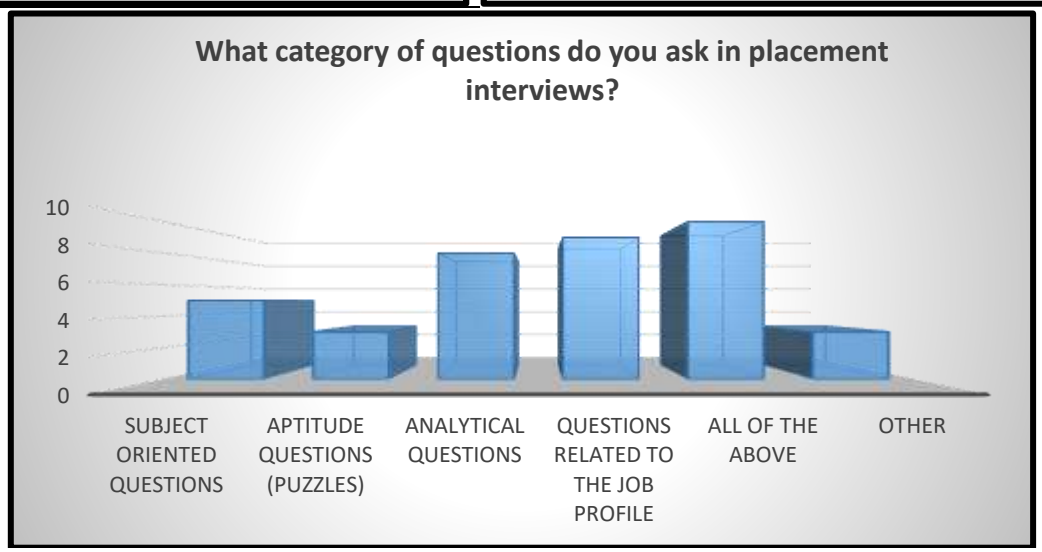
| | | |
|---|---|---|
| 4 | What category of questions do you ask in placement interviews? | The graph has been shown at the end of the table. Its basically a mixture of aptitude, subject oriented questions. It also includes questions related to the job profile and some personal questions. |
| 5 | What qualities do you look for in a candidate? | • confidence<br>• good communication skills<br>• subject knowledge<br>• aptitude<br>• drive to learn and innovate |

| | | |
|---|---|---|
| | | • hardworking<br>• good academic record<br>• all-rounder, should have extra curricula's<br>• leadership ability<br>• Team player |
| 6 | What according to you is the most important skill required to function effectively in the corporate field? | • The ability to learn and adapt to the ever changing industry<br>• Communication skills along with a well-rounded personality<br>• Professional knowledge and ability to deliver within stipulated time frames. |
| 7 | What changes would you suggest that will further facilitate/improve Academia-Industry collaboration? | • industrial trips<br>• workshops by working professionals<br>• internship opportunities<br>• This will take an effort from both the Academia and Industry. One without the other will not succeed<br>• Grooming and orientation programs should be introduced. |
| 8 | List any one obstacle in the academia industry collaboration | • Lack of easily available information about almost everything related to the industry<br>• Lack of effort from the students.<br>• No initiative from the industry or the college authorities<br>• Fascination with money.<br>• Media sensationalizing placement news: misinforms parents and prospective students. |
| 9 | What do you think is the most important factor to support such a collaboration? | • An effort from both sides to bridge the gap. Some incentives do the same from the government may also help.<br>• Colleges should promote better work culture. Also providing the right guidance to know what they are into and give them the practical picture.<br>• Syllabus should be more practical oriented at least in final year as per industry requirement |

**Graphical representation of the findings**



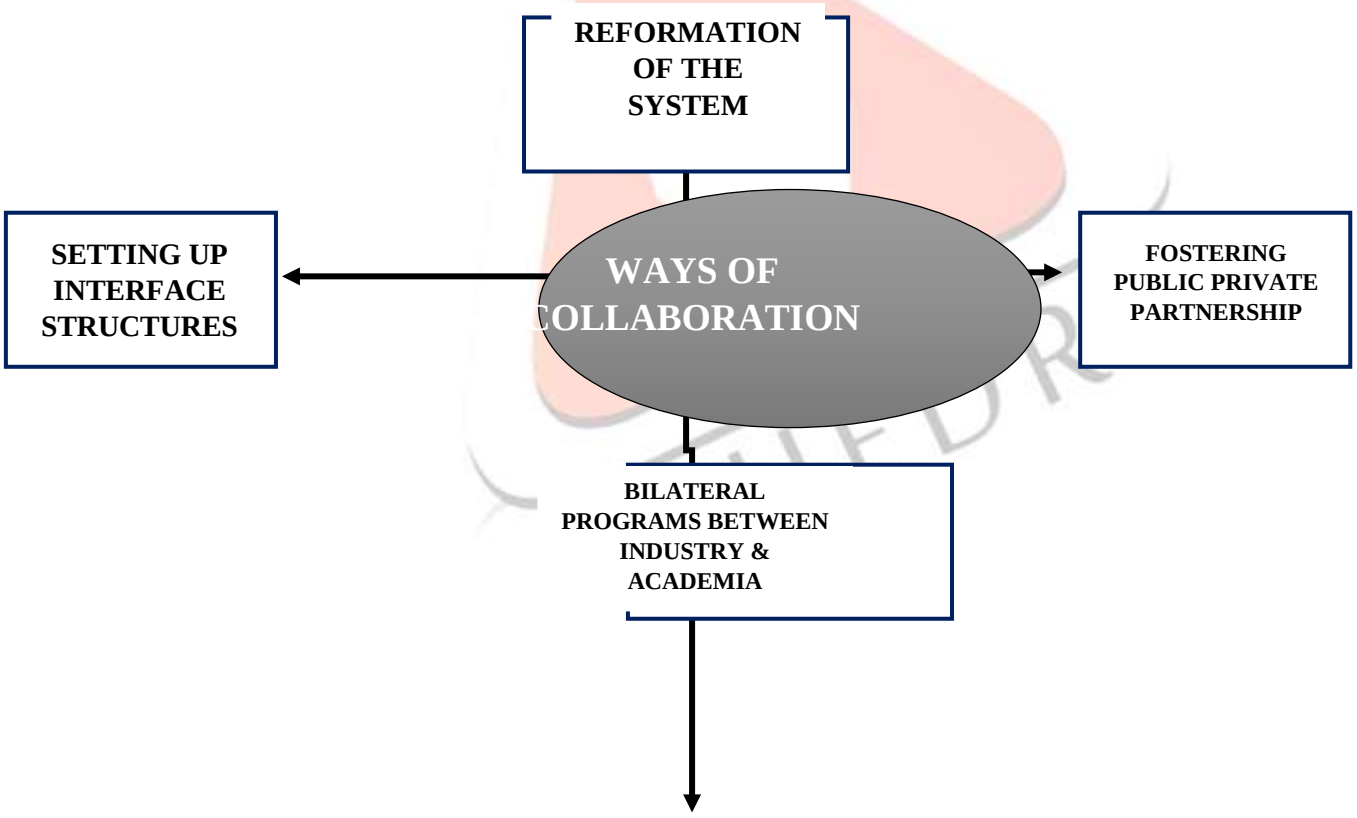



AREAS OF CONCERN

| Academic Institutions | Students | Faculty | Industry |
|---|---|---|---|
| There is a disparity among institutions. There is no common framework | Unrealistic expectations with respect to salary and position. Have to realize that it will approximately take 5 years to climb the corporate ladder. | Lack of knowledge and understanding of industry specific content. | Lack of scientific learning and development programs like induction and refresher training programs. Do not give a lot of scholarships to encourage students. |
| The curriculum differs and the outcome is also very different and inadequate | Mindset has to change. Have to understand that degree not sufficient to get a job. Skills and attitude equally important aspects. | Lots of emphasis on theoretical knowledge instead of practical knowledge and case studies. | Reluctance to invest in academic institutions and R&D |
| Subjects and skills taught outside Tier 1 institutes are inadequate and irrelevant | Lack of awareness of the real business world | Currently lack skills to cope with the changing business environment. | Reluctance to interact with academicians |

RECOMMENDATIONS

The need of the hour is to develop an integrated model of the industry-academia interface. It's not very easy as academia - industry collaboration is not something that can be well explained with some stipulated laws or by establishing a static model because it evolves progressively keeping pace with the continuous changes in the academic and industrial domains.
There are various ways of collaboration




- **Reformation of the system**

- Proper Incentives:
  The academic institutions and the industry can be exempted from paying tax on all R&D expenditure.
  The academicians should be adequately recognized and appreciated for their efforts.

- Establishment of centers for excellence in specified areas of universities/institutions:
  Specific centers should be established whose main focus would be skill development. This would help make students work ready.

- Restructuring of students' internships:
  The internships should be made mandatory. A feedback mechanism must be established so that the students can understand the work better. Regular internships would also enable organizations to develop a structured internship programme keeping in mind the academic curriculum. This would enable students understand various aspects of the business world and will make them better prepared to deal with situations when they enter the business world.

- Encourage regular interaction of peers:
  The knowledge of the youth cannot be underestimated. Regular discussions would ensure diffusion of knowledge. In fact the faculty would also benefit from such interactions as they'll be forced to research on new topics.

- Involvement of alumni as mentors:
  Alumnus with industrial background can act as mentors for students to provide guidance on
  - ✓ Improving employability skills
  - ✓ Share experiences related to placements
  - ✓ Knowledge of global business trends
  - ✓ International opportunities in business
  - ✓ Information related to technological advancement (e.g.: what software is being used for the accounting process apart from tally)

- Regular guest lectures
  Top notch talent of the country must be invited for delivering lectures and their advice must be taken while framing the syllabus.

➢ **Setting up of Interface structures**

- Establishment of new centres

Centres should be established in order to support research and training activities. These centres

- ✓ Can have facilities for common use which implies co sharing of R&D equipments
- ✓ Should have all facilities to support all research related activities.

- Setting up of Entrepreneurship cell and Incubation centres

Colleges should set up the above mentioned centres in order to encourage students to develop products from scratch. This would further facilitate skill development. Adequate funding must be given to innovative ideas.

- Common Certification System

A Common Certification System should be developed to check the skill level and technical proficiency of the workforce. This will help save expenditure in connection with recruitment and training of employees as well as time of the company. A common agency/ institute approved by industry and recognized by government can be given the authority to carry out these tests and certification. The skill assessment should be conducted in two phases: knowledge test and practical test. Such an assessment will help to distinguish between rote learners and skilled people.

➢ **Bilateral programs between industry and academia**

- A visiting faculty system can be setup where industry experts can come and deliver lectures and train students. There can also be a skill development week in college
- **For Example**: HR College of Commerce and Economics, Mumbai has come up with the HR pulse week where various workshops are conducted. The workshops include corporate grooming, Team Building etc. Other colleges should also come up with such innovative ideas
- Research work undertaken at colleges may be discussed with industry experts to familiarize the industry with future technological advancement so that Indian firms can make use of latest technologies to get first movers advantage.
- **For Example**: Maruti Suzuki realized the need for small cars and therefore could exploit the market potential completely.

➢ **Fostering public private partnerships**

A public private partnership can exist so as to bear the burden of investment in latest technology. Such partnership would benefit both the private as well as the public sector. Both can reap the benefits of research

➢ **Miscellaneous**

There are a number of other avenues by which academic institutions can collaborate with industry.

- Guest Lectures by industry representatives.
- Suggestions by industry experts in curriculum and content designing. Inclusion of industry experts in governing councils and other board of studies.
- Joint seminars by academia and industry both for faculty and students.

- Consulting on management and related issues by academia.
- Academia generating ideas and acting as incubators to new business.
- Industry providing financial and infrastructure support to academic institutions for their development.
- Funding academic and applied research. There is also a need to intensify the research collaboration.

## CONCLUSION

Our country possesses the greatest asset and that is Human Resources. To make use of this asset to the fullest there is a need to provide adequate training to the manpower so that our country can progress.

The research highlights that there are serious gaps between the industry and academic institutions. It also highlights that more and more people/institutions are becoming aware of this and serious efforts are being made to bridge the gap. Academic institutions are trying to come up with initiatives to make students work ready. The need of the hour is to develop an effective academia-industry interface so that our country can reap the full benefits of its manpower.

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